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*Original Article*

# *Face masks in education: The cases of Greece and Singapore*

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**Abstract**

In response to the COVID-19 pandemic, governments across the world implemented practices and rules related to masks in educational settings and beyond. Through a desktop analysis and systematic literature review, leveraging educational, governmental and journalistic sources, this article provides an extreme comparison of two nations' intra-period responses on the use of face masks in education. Taking the examples of two different countries (Greece and Singapore), we discuss their contrasting approaches to face mask use in education, ranging from pre-schools to universities, while taking into account the macroenvironmental dissimilarities of their educational systems and technological capabilities. There are significant opportunities to learn by examining the governmental, pedagogical, and community reactions of different countries about mask use, in order to strengthen educators' collective

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response to COVID-19 now and into the future. These various threads could then be pulled back together in a discussion across borders.

**Keywords:** case studies, coronavirus, COVID-19, extreme comparison, face masks, Greece, schools, Singapore

## Introduction

Since the beginning of the pandemic and despite advances in pharmacological treatment and early vaccine development, the use of masks remains a hot topic due to its politicisation of discourse and decision making (Schünemann et al., 2020; Rudolph et al., 2021). The rhetoric on the use of masks has considerably changed since the beginning of the pandemic, when experts advised against their use, due to reasons of self-contamination, amongst others. As the pandemic kept evolving, the rhetoric shifted considerably to the compulsory use of masks, with the argument that it protects others (Schünemann et al., 2020). The shift in thinking from 'self' to 'other' is key for this article and it will be the center of our critical discussion. Clinical studies worldwide continue since 2020 to examine the effectiveness of face masks in relation to saving lives and delaying the spread of the coronavirus. Worby and Chang (2020) concluded via a mathematical model that even with limited protective effect, masks can reduce total infections and deaths for the elderly and can delay the peak time of the epidemic. However, random distribution of masks is suboptimal. Eikenberry et al. (2020) suggest that face mask use should be nationwide and, coupled with social distancing, can be the most effective measure to delay the spread of the coronavirus and reduce community transmission (see also Walger et al., 2020).

Clinical studies, such as the ones discussed above and indeed many more (e.g. Kim, 2020); Scheid et al., 2020) have subsequently informed political discourse and decisions taken by authorities, which inevitably affect different parts of the society. We focus our discussion on the use of face masks in education. After brief introductions to the educational systems of the chosen illustrative countries, we analyse the connection that masks have with learning and the impact on teachers and students. Finally, we refer to the challenges of mask-wearing in an educational environment in which communication is a key component.

The two chosen educational systems to illustrate our case are those of Greece and Singapore respectively. These two systems were chosen as they seem to have nothing in common and are situated in very different parts of the world. This choice is deliberate in order to determine the common challenges faced objectively and examine the issues that arise across two countries that are very different in cultural, political, and economic terms. The research questions that guide our analysis are as follows:

a) What challenges do educators and students face in their learning environment due to mandatory mask-wearing during the global pandemic?

b) How does mask-wearing affect the development of care and connection in the learning environment?

c) What strategies have the educational system of each country and teachers themselves put in place to support students to overcome these challenges?

## Methodology

Our article employs an extreme-comparative methodology (Shelley et al., 2019). Such a strategy is apt as we explore two contrasting approaches to face mask-wearing in two countries that are rather different in terms of history, culture, language, ethnic composition, geographie, economic development, Internet infrastructure, as well as COVID incidence and mortality rates.

Singapore and Greece are a study in contrasts: Greece is in Europe, Singapore is in Asia; Greece has a long and eminent history, Singapore a very short one (at least as a nation-state); Greece has 180 times the land area than Singapore, but less than twice the population – hence Singapore is 90 times more densely-populated in comparison. While culturally, there are some surprising similarities (for instance, in terms of collectivism and high power distance), there are also marked distinctions: Greeks tend to be highly uncertainty-avoiding, while Singaporeans score very low in this regard (Hofstede Insights, n.d.). Language-wise, Greek education is largely monolingual, whilst Singapore's education system prominently features bilingualism – the 'mother tongue' (for instance, Mandarin, Malay, or Tamil) plus English.

While a comparison of the gini coefficient (measuring inequality within a country) in Greece and Singapore shows insignificant variations, the average income of Singaporeans is more than three times higher than that of Greeks (undoubtedly, this is exarcebated by the fully urban character of Singapore). Finally, Greece had in excess of 350 times more COVID deaths than the city-state: As of 7 June, 2021, Greece had more than 409,000 COVID cases and 12,277 deaths, whereas Singapore had 62,196 cases and 33 deaths (Worldometers, 2021a, 2021b).

Table 1: Greece and Singapore. An extreme-comparative methodology

| Country | Greece | Singapore |
|---|---|---|
| History | Classical Greece had a powerful influence on Western civilisation (2,500 years ago) | An accidental nation-state in 1965 |
| National cultural dimension | High uncertainty avoidance | Low uncertainty avoidance |
| Ethnicities | Largely homogeneous (91.6% ethnic Greeks) | Chinese, Malay, Indian and others |
| Languages in education | Greek | Bilingualism: 'mother tongue' (Mandarin, Malay, Tamil etc.) + English |
| Geography | Southern Europe | Southeast Asia |
| Population | 10.5 million | 5.7 million |
| Land area | 131,957 square km | 728 square km |
| Population density | 83 inhabitants per square kilometre | 7,810 inhabitants per square kilometre |
| Per capita income (PPP) | US$30,470 | US$92,270 |
| Gini coefficient | 0.33 | 0.35 |
| Average Internet speed | 56th in the world | 6th in the world |
| PISA performance | Ranked 42nd in the world | Ranked 2nd in the world |
| COVID infections | 364,000 | 61,378 |
| COVID deaths | 11,089 | 31 |

Sources: Britannica, 2021a, 2021b; *Ekathimerini.com.*, 2020; Haldon, 2021; Hofstede Insights, n.d.; Move to Singapore, 2028; PISA, 2018: Worldometer, 2021a, 2021b.

## The Case of Greece

### *Education in Greece*

Public education in Greece is free and compulsory for all children between 4 and 15 years of age. Most students attend state schools, for which there are no tuition fees, while less than 10% of the student population enrolls in private schools (Constantinides, 2014). The mainstream education system is divided into a) nursery '*nipio*' (4-6 years old), b) primary education '*dimotiko*' (6-11 years old), b) compulsory secondary education '*gymnasio*' (< 14 years old), c) post-compulsory secondary education '*lykeio*' (< 17 years old), d) vocational training institutes and higher education establishments, university '*panepistimio*' (> 18 years old). In Greece, the special needs schools are not part of the mainstream education system and if followed they are compulsory (< 14 years old – Figure 1).

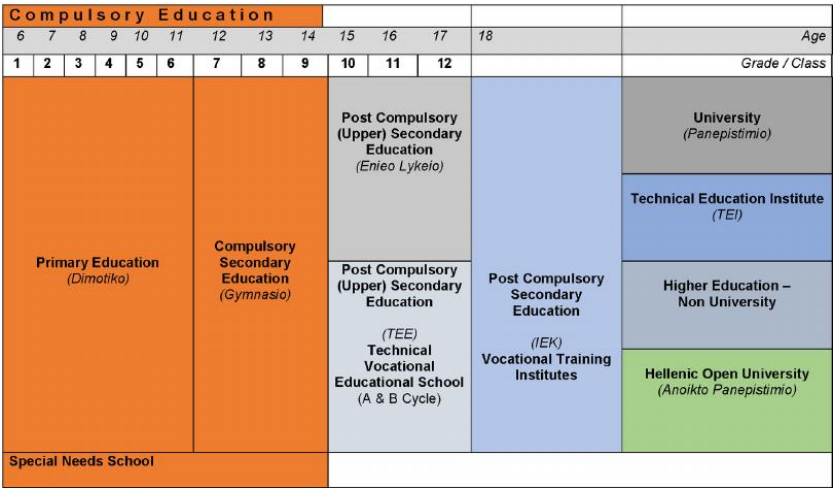


Figure 1: Giousmpasoglou et al. (2016), p. 121.

Since the beginning of the pandemic, secondary and upper secondary schools in Greece shut down for about one-

third of the school year (May to July 2020: Centre for European Constitutional Law, 2020; Smith, 2020; Perrigo & Hinks, 2020). Concerning higher education in Greece, all the universities made use of the remote learning facilities from the outset and since the 3rd of November 2020, remote teaching and learning became compulsory. Remote learning became the norm, and decisions and changes were to be implemented quickly. The Ministry of Education and Religious Affairs reacted very well at the time, since everything turned to remote mode. Children from the ages of four to 12 were able to study in a completely remote way.

On November 7th 2020, following a rise in coronavirus cases, Greece entered its second national lockdown. From that point and until the time of writing, with small breaks depending on COVID cases, the entire country has to adhere to special measures. Measures include mandatory mask wearing in public places; a limitation on movement; allowing people to leave their homes only for specific reasons while notifying authorities by sending an SMS; a mandatory 50 percent of employees working remotely; a number of businesses like bars, cafes and restaurants remaining closed; and schools remaining closed or/and shifting to remote digital learning (GTP, 2020)..

### *Response to COVID-19 and changes in mask-wearing approaches*

Face masks became mandatory in all public services in Greece, including schools since mid-August 2020, in response to the increasing number of coronavirus cases and coupled with social distancing measures (GCT, 2020). Children in Greece are all wearing masks whilst in school, while schools remain open (schools open and close depending on the number of COVID-19 cases in each region).

Schools responded in different ways to the measures preventing COVID-19 expansion. Referring to the periods that nursery schools (4-6 years old) remained open, there was an everyday routine of temperature taking at the entrance of the school and a change of masks three times a day (referring to the five-hour morning program from 8am to 1pm). This was not the case in primary schools, where the only measure taken was the use of one mask per day, which children removed during breaks and wore again while in class. There was no temperature-taking at the school's entrance or other obvious measures of control. The use of masks was obligatory in the classroom, while during school breaks that took place between lessons (three times a day for 15-20 minutes), all the children played together with no masks. In the event of a COVID-19 case among students or schoolteachers, schools would close for 15 days. From the beginning of the pandemic, all extracurricular activities like sports and group dancing were suspended or took place virtually.

Children might place themselves at more risk by potentially wearing contaminated masks (Centers for Disease Control and Prevention, 2021), for example when they put their masks on and off during breaks. It was on 23rd of October, 2020, that specialists started examining the use of masks for children in school even during breaktime (TANEA, 2020), especially for the regions at the level of 4 (increased risk) and the level 3 (increased surveillance). This measure was effective from the 3rd November 2020, when masks became obligatory everywhere in Greece (indoors and outdoors), which included both learning and teaching activities in class as well as breaks in schools.

According to the limited evidence available at the time (November 2020), World Health Organisation (WHO) explained that young children may have lower susceptibility to infection compared to adults (WHO, 2020c). Nevertheless,

benefits of wearing masks for children during COVID-19 should be weighed against potential harm associated with wearing masks, including feasibility and discomfort, as well as social and communication concerns (WHO, 2020a). In the case that children of two or three years of age are to wear a mask, WHO recommended an appropriate and consistent supervision by a competent adult, especially if mask wearing is expected for an extended period of time. Nevertheless, WHO and the United Nations Children's Fund (UNICEF) advised that children under the age of five should not be required to wear masks, based on their safety and concerns of appropriate mask use with minimal assistance (WHO, 2020b).

Practices of wearing masks at school, proposed by the Greek government, could not easily be applied to young children (under 6 years old), as this age group could not have stayed for a long period without touching their mask and then their nose and face. Additionally, the large number of students per class for children below the age of 12 increased infection risk.

Seeing how well Greece had reacted to the first wave of the coronavirus, Greeks were confident that best practices would continue to be followed. However, even though the Ministry of Education had the necessary time to get prepared (after the first wave), due to the 2020 summer vacations, nothing or very little was done to avoid problems.

> "*The Ministry of Education had all summer at its disposal to work out a Plan A for a school year with less infections and a Plan B for a school year with more infections. It did not. The Greek summer can be very seductive…*" (Keep Talking Greece, 2020a)

The remote learning practice (see Bonk et al., 2020, and Crawford et al., 2020) for elementary schools was put in place in November 2020, via Webex. The first three days were difficult (technical problems, new practice for young children

and their teachers) evertheless, everything steadily improved, when children, teachers and parents started to adapt to this new reality (see Naftemporiki, 2020).

### *Challenges of mandatory mask-wearing*

At the beginning of the school year (14 September 2020[5]), secondary schools remained closed (Stevens, 2020). The two main reasons were a) the numerous protests and strikes against the obligatory mask-wearing in schools, and b) the high number of coronavirus infections[6].

There were challenges both in remote and face-to-face teaching contexts, as well as an increase in social issues. Whilst digital devices are an essential part of remote teaching, many teachers, at least at the beginning of the pandemic, lacked the required knowledge, skills, and tools to design quality online learning materials, as a remote facilitator has to acquire different skills on top of being an educator (Karachristos et al., 2020). Students also had to quickly adapt to this new reality of using digital tools and remote learning.

During face-to-face mode, teachers found it hard to teach and communicate while wearing a mask. Mask-wearing impoverishes communication and interaction between educators and children, especially for younger students that

[5] Lessons in Greek schools and universities were delayed by one week.

[6] On 30 October 2020, more than 390 units and sections of school units throughout Greece were suspended due to verified cases of COVID-19. The Greek Ministry of Education (https://www.minedu.gov.gr/ ) provides an official page that is updated constantly with information on which schools will remain closed because of verified COVID-19 cases (https://www.sch.gr/anastoli/web/index.php ). For the suspension of a school unit or the whole school, three unrelated cases were required at a minimum, while in the case of a teacher who taught in more than one department, a risk assessment was made based on the tracking of the teacher's close contacts (Newsroom, 2020).

have the intention to observe the lower part of the face when the teacher is speaking (Spitzer, 2020). Davidson (2020) explains that when learning includes lip reading, students find it impossible to follow. Such constraints are particularly pertinent for teachers with special needs (e.g. deaf students), young children going to school for the first time, and foreign language learners. Children with hearing impairments are being hugely disadvantaged by teachers wearing non-transparent masks.

Additionally, families, educators and students in Greece, among other countries, are impacted financially and socially. There are families that cannot afford to buy one or more computers in the same household, and for that reason, some students were not able to do remote learning or they have to follow courses via mobile phones which makes attendance very difficult (OECD Policy Responses to Coronavirus, 2020).

Finally, teachers in schools do not seem to have any kind of supplies such as masks and antiseptics to use in case of need. The Ministry of Interior Affairs in Greece provided €6.2 million for the supply of free masks to students, which turned out to be a big fiasco, as masks were oversized and not suitable for students (Kokkinidis, 2020; Simos, 2020; Keep Talking Greece, 2020b).

### *Support strategies*

The Hellenic Open University, among others (Lionarakis et al., 2020), put in place a number of seminars and made available online materials for educators to improve their online presence. Additionally, during lockdown periods, teachers had continuous technical support organised centrally by the Ministry of Education and benefited from training sessions in developing their digital skills (CEDEFOR, 2020). It was heartening that most teachers responded creatively, covering

significant gaps in digital competences with their own ability to create interactive methods and tools for their teaching (Bessios, 2021). Additionally, the educational television broadcast recorded courses for primary school pupils from 30 March 2020 onwards. Such initiatives in improving digital literacy (National Report Greece, 2019), were intensified during the pandemic. Most of the municipalities in collaboration with the government and the Ministry of Education now work tirelessly, providing free COVID-19 tests for teachers and students and lending laptops and tablets for students in need (CEDEFOR, 2020), something that is now provided to every student, after the schools have returned to face-to-face mode since 3 May, 2021 (GTP, 2021).

## The Case Of Singapore

### *Education in Singapore*

All Singaporeans must attend public primary schools (MOE, 2021). Primary school education is free (Liew, 2020), and local University fees are subsidised. An overview of the Singapore education system is provided in Figure 2 (see also: Tan (Ed.), 2012). Singapore has the highest achieving students in international education rankings, with its teenagers coming top in tests in math, reading and science (OECD PISA, 2016); in 2019, half of all the perfect scores in the world on the International Baccalaureate examination came from Singaporean students (Ang, 2020a).

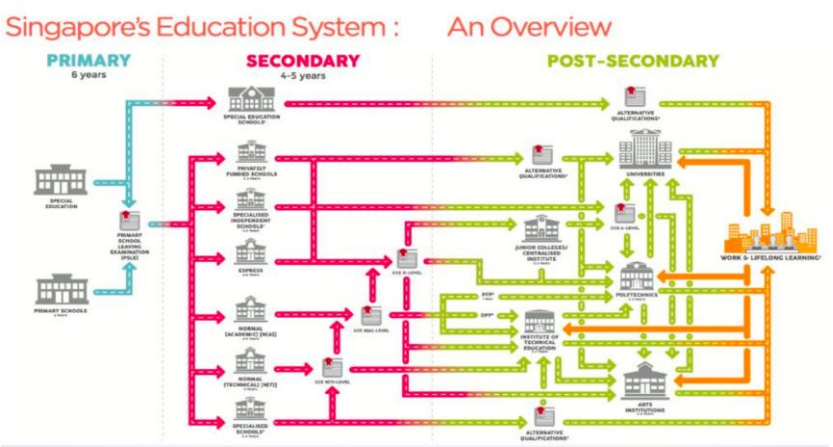


Figure 2. Singapore's education system: An overview (Haiku Deck, n.d.).

Singapore's higher education includes diverse types of university offerings: Local autonomous universities (AUs); international university transnational satellite campuses; and private education institutions (PEIs). PEIs occupy a unique facet of the education sector with a limited proprietary offering under the regulatory supervision of the Government's SkillsFuture Singapore's (SSG) Committee of Private Education (CPE). In Singapore, there are six AUs, eight international universities' branch campuses, and 329 PEIs (Lo, 2017; Skills Future Singapore, 2020b; Immigration and Checkpoint Authority, 2020).

### *Response to COVID-19 and changes in mask-wearing approaches*

In early 2020, Singapore's use of public health best practices in response to the novel coronavirus (COVID-19) pandemic had garnered praise from the World Health Organisation (WHO) and international media (Evers, 2020). The intra-period

response from Singapore was influenced by early detection and high sanitisation and social distancing efforts, compared with other countries. Universities remained open, teaching either fully online or through blended learning approaches.

Initially, the World Health Organization (WHO) did not think that mask-wearing was necessary, and the Singapore government followed this advice (Yusof, 2020). For instance, a photo in *The Straits Times* of Temasek Junior College students having a lesson over Google Meet with a teacher who was serving a stay-home notice in March 2020 shows no mask-wearing as yet (Ng & Ng, 2020b). Later, on 3 April 2020, both the WHO and the Singapore government changed their minds, due to new scientific evidence (Toh, 2020).

In the second quarter of 2020, the rate of new infections increased alarmingly, especially among foreign workers staying in dormitories (Bonk et al., 2020). The mortality rate, however, remained low with 33 deaths from 62,051 cases (0.0%) compared to a global average mortality of 2.2 percent (Our world in data, 2021) as of 2 June, 2021.

Prior to the circuit breaker, universities made a preliminary response by delivering all learning activities online and converting summative assessments (e.g. invigilated examinations) into a variety of online or take-home modalities (Tan et al., 2021). The Singapore government's technocratic approach to COVID-19 began after an initial 'circuit breaker' (lockdown) had been imposed to contain the spread of COVID-19 from 7 April to 1 June.

From 8 April, all schools were closed for what was meant to be a "month-long home-based learning (HBL) exercise" (Tham, 2020) which was later extended till 1 June. Activities within Singapore were planned to be resumed gradually over three subsequent phases: safe reopening, safe transition, and

'the new normal' (Low, 2020). This background section provides a brief overview of these phases for context.

Phase 1 ('safe reopening': 2 - 18 June) saw the recommencement of low risk economic activities (Low, 2020). This included students and staff of higher education institutions returning to campus for practical and laboratory-based sessions, with instructional learning remaining online. However, co-curricular activities, enrichment activities and tuition were not resumed (Low, 2020).

In Phase 2 ('safe transition'), some medium risk economic and social activities resumed (Medina, 2020). Phase 3 (the 'new normal') began on 28 December, 2020 and did not mean a return to pre-COVID times. It was expected to continue until the virus was under control with widely available vaccines, lasting for a prolonged period (Chew, 2020; Low, 2020), "potentially over a year" (gov.sg, 2020). More activities were to gradually resume under Phase Three (gov.sg, 2020). Among other things, Phase 3 involved the re-opening of Singapore's borders and allowing for foreigners to transit and enter the city-state, with safeguards such as rapid health checks in place (Medina, 2020). As of 8 May, 2021, Singapore went back to Phase 2 due to a rise in COVID-19 cases Lai, 2021b).

The pandemic has brought rapid changes to the way individuals attain knowledge. In the efforts to prevent disruption of the learning process, some institutes of higher learning in Singapore (such as Singapore Management University and Singapore Institute of Technology) embraced technology well ahead of the curve by integrating online learning in their curriculum (Hutton, 2020). Educational institutes were forced to adapt to full online learning solutions on platforms such as Zoom, Hangouts, and Blackboard to facilitate the learning process. Apart from having to adapt to these solutions rapidly, ensuring privacy and security was also

a challenge. Early into online learning solutions, there were hacking incidents reported by the Ministry of Education (MOE); for instance, a Zoom session was hijacked by pornographers (Hutton, 2020).

Despite these disruptions during the sudden move from traditional classes to online learning, it is believed that the pandemic will accelerate the integration of information technology in education and it will eventually become an integral component of school education (World Economic Forum, 2020). Whilst COVID created great challenges, this has led to long-term opportunities to change higher education forever. With in-person examinations and tests replaced with alternative assessments or moved to online examinations, the large examination halls may be a thing of the past. The rapid digitisation of lectures may eliminate the need for large, long, and passive lectures (Tan et al., 2021).

Many institutions have simply digitised their content – taking face-to-face practices and replicating them in an online environment. The next stage will be to incorporate online pedagogical principles to shift from technology being the driver of curriculum design and delivery, to technology being the tool or facilitator of quality curriculum. This change in practice needs to be driven by whole of system policy reform, including national higher education quality framework, institutional policy for online delivery, digital capability building for academics and students, and reimagining the role of the academic, educational designer and educational technologist (Tan et al., 2021).

The Singapore Higher Education (HE) response to COVID-19 has been discussed in some depth in Tan et al. (2021). There are a number of studies that provide single institutional responses (e.g. Cleland et al., 2020; Compton et al., 2020; Fung & Lam, 2020; Goh & Sanders, 2020; Rai, 2020) and

there are some articles that compare and contrast the HE responses to COVID-19 in Singapore with those of other countries (Crawford et al., 2020; Bonk et al., 2020; Wilson et al., 2020).

Ong Ye Kung, the then-Minister of Education, observed that due to the pandemic, teachers, students and parents went through "an unexpected crash course" in home-based learning (HBL: cited in Davie, 2020b). Schools offer social interaction and the building of soft skills. While HBL cannot be a substitute for school, HBL in Ong's view "encourages more independent, self-directed learning", one of the most important lifelong skills (Davie, 2020b). As a result, "Education will not be the same post Covid-19. It will be better" (Ong, cited in Davie, 2020b).

There is a concern that HBL increases inequality, due to not all students having suitable digital devices and a stable Internet connection at home (Davie, 2020b). Some children face poverty, jobless parents and domestic violence (Davie, 2020a). There had been an original plan that students would get a personal learning device by 2028 – the timeline has since been pushed forward to end-2021, a change that in Minister Ong's words had been prompted by "the universal adoption of digital learning" during the circuit breaker period" (cited in Davie, 2020b).

### *Challenges of mask-wearing*

This section combines the discussion of the first two research questions as they are intrinsically intertwined. Apart from the eight-week circuit breaker period (that included rescheduled school holidays), schools have remained open throughout the pandemic in Singapore. There is an ongoing discussion in many countries whether or not schools should be open or closed and under what conditions. In the U.S., for instance, schools were

closed for prolonged periods, and there is evidence that shutting schools has hit poor American children's learning (*The Economist*, 2020).

When schools in Singapore, from primary to junior college levels, reopened in Phase 1, there was no drop in attendance as compared to pre-circuit-breaker levels, with attendance averaging 97% (Ang, 2020c). Initially, students (apart from those graduating soon) were on a weekly rotation schedule (one week in school alternating with one week at home). This offered the opportunity to consider feedback and schools set aside time to familiarise students with the new routines and safety measures (Ang, 2020c).

There was a long list of rules to follow, such as wearing masks or face shields except when eating or exercising and having a wipe-down routine after each lesson (Teng & Ang, 2020). Teachers used portable microphones or the classroom audio system, so they could be heard without raising their voices (Teng & Ang, 2020). Students had to stay in class groupings, fixed exam-style seating and appropriate distancing (Ang, 2020b). There was also daily temperature taking (Ang, 2020b).

Students were not used to wearing masks for prolonged periods of time (Ang, 2020c). Apart from teachers having to juggle between face-to-face class and teaching students online, they also had to get used to wearing face shields and masks (Ang, 2020c). Another challenge was social distancing, for instance during playtime. Impressively, even in pre-schools, children were able to adhere to the new rules. "Most kept their masks on through the day, removing them only during meal and nap times. They washed their hands correctly and frequently and kept a safe distance from their friends" (Ang, 2020b). Apparently, pre-school children were more open to

following practices such as mask-wearing as they saw their teachers and friends Doing the same (Ang, 2020c).

For schools and pre-schools alike, many activities like outings had been suspended; as a result, some of these activities were redesigned (for instance, using role play) or simulated (for instance, by using virtual projections of a forest) so that there would be no loss of "the essence of the social and emotional connection with the children" (Dr Jacqueline Chung, cited in Teng & Ang, 2020). Four ways how schools and pre-schools alike prepared for the reopening after the circuit breaker were: (1) helping children to understand and adhere to safe practices (for instance, using designated chairs with children's name on them; or using games to understand safe practices); (2) staggered arrival and dismissal times; (3) cleaning and disinfection through professionals and putting markers on the floor as part of safe distancing measures; and (4) meals (either brought from home or ordered from the school canteen) being had in the classrooms (Teng & Ang, 2020).

Some students complained that they were "not used to having to wear a mask most of the time": "It's suffocating because you can't really breathe well and it makes you warmer" (primary school pupil, cited in Ang, 2020b). To encourage mask-wearing, some schools got additional masks from the school uniform vendor and allowed the children to decorate these themselves. "If they personalise their masks, put buttons or ribbons or perhaps their names, they will own the masks and perhaps they will want to use them more... a new accessory for them that will be part of life and the 'new normal'" (Ang, 2020b). While a public-health necessity, it has been argued that masks are disrupting human communications, as masks challenge the ability in understanding facial expressions. This could lead to children lagging behind in learning to recognise subtle facial signals (Hotz, 2021).

### *Support strategies*

All secondary schools and junior colleges will start blended learning for some levels from Term 3 (starting July, 2021) onwards. In addition, every secondary school student will receive a personal learning device – a laptop or tablet – by end-2021 (Ng & Ng, 2020a; Ng, 2020). Education Minister Lawrence Wong, who made these announcements in December 2020, argued that the move to full home-based learning (HBL) during the lockdown had cemented the need for students to be adaptable and nimble, and to be more self-directed and independent learners (Ng, 2020). "The question now is how we can lock in these gains and mainstream these new practices" (Wong, cited in Ng, 2020).

With blended learning brought forward during Covid-19, individuals have to prepare themselves for a different mode of education. Many changes would occur to the curriculum, school, teachers, technology, governance, and students (Gopinathan & Varaprasad, 2020). The pandemic has brought about a renewed focus on the roles of an educator. Educators had to play new roles such as an IT support, as a social worker, and a health promoter, all at once. Educators have to remind students of the safety measures (social distancing, wipe-down routines, personal hygiene) put in place during Covid-19. Moreover, educators had to take actions to keep parents calm throughout the shift to online learning. Attention was also to be placed on the psychological, physical, and emotional health of these students (Tan, J., 2020).

Educators also had to equip themselves with sufficient IT skills to manoeuvre efficiently through online lessons, differing digital platforms, familiarise students on new learning methods and platforms, and glitches that may occur during e-learning. Next, educators also had to play the role of a social worker as they attempt to ensure inclusivity and equity. Educators needed

to ensure that students had adequate home support for home-based learning (Wi-Fi, devices). They proactively reached out to those in need of these services to ensure continued learning during the pandemic (Tan, J., 2020).

Educators had to fill several roles during the pandemic and gained insights and continued learning during this process. These measures forced educational institutes to rethink and re-evaluate their current teaching practices. Looking forward, organisations need strategies for greater integration of blended learning and digital learning into school curricula. Teaching as we used to know it would be of the past, with knowledge and information being widely available. Learning can take place as online tutoring, machine learning, and AI technologies. Teachers may no longer be needed as a subject-matter experts. Hence, it is crucial for teachers to take on different roles where both the teacher and student learn from each other (Gopinathan & Varaprasad, 2020).

In a knowledge-based economy such as Singapore, the pandemic has seen a transformation of the education landscape. Education is bound to be different not just in the delivery of content, but also in determining the curriculum for each student, modulating the delivery methods across a spectrum of options and providing individual feedback (Tan, J., 2020). Educators think that the classroom of the future would have interactive video, anticipate self-paced curriculum, utilising AR/VR/360 video, and personalisation of education. Technology may provide a greater reach in education, increased diversity in employment and allows for lifelong learning (Jones, 2020).

With all the changes made to learning, the line between the public and private sector education market may become blurred and standard curricula may give way to a more open education system (Gopinathan & Varaprasad, 2020). At present,

the Singapore government is intent on upskilling individuals starting from pre-school years. The Education Ministry has developed plans so that all income groups can benefit from quality programmes. Schools with a larger proportion of children from lower-income families or disadvantaged backgrounds will be getting more resources. Allied educators, counsellors and welfare officers are also being deployed, especially for students with special needs (Lai, 2021a).

A main challenge to achieving these changes is how to bring educators and parents on board. This can be achieved through consultation and communication. Incrementalism may need to give way to more experimentalism" (Gopinathan & Varaprasad, 2020). 'Pandemic fatigue' abounds. A survey saw that 44 percent of 1,000 respondents said that they were tired of adhering to safety measures (mask-wearing, social distancing, contact tracing: Goh, 2020). In addition, mask-wearing has been causing increased dermatological problems such as eczema, acne, chafing and skin infections. Furthermore, mask disposal poses an environmental hazard, with one horrifying estimate saying that 129 billion disposable face masks were used across the world every month throughout the pandemic (Tan, C., 2020). Mask debris, latex gloves and other forms of personal protective equipment (PPE) have begun showing up in oceans, sounding the alarm among conservationists and non-governmental organisations around the world (Tan, C., 2020).

## Findings and Discussion

Unsurprisingly, our extreme-comparative methodology yields contrasting results in our two case studies. In Greece, schools were closed for extended periods of time, while in Singapore, schools were only closed during the 'circuit breaker' (that period between 7 April to 1 June 2020 included rescheduled

school holidays). While in Greece, there was a relative lack of control measures and an inconsistent use of face masks (at least as late as November 2020), schools in Singapore employed a systematic approach with granular rules that were strictly adhered to, with consistent mask-wearing from April 2020 onwards.

In Greece, a 'mask fiasco' (with masks distributed that were oversized for children) occurred. In Singapore, from April 2020 onwards, face masks were widely available and worn consistently. In Greece, especially amongst the poor and in rural schools (see Lymperis, 2019, 2021), personal learning devices such as laptops or tablets are far from omnipresent. In contrast, the Singapore government will have issued personal learning devices to at least all secondary students by the end of 2021. COVID-19 has been called the "great unequalizer" (Zakaria, 2020, p. 151; see Rudolph et al., 2021) and in both countries, increased inequality can be observed, with students from poor families being more disadvantaged by school closures and remote learning, as compared to students from more privileged backgrounds. Table 2 provides an extension of the earlier Table 1 and continues the extreme comparison with a summary of some of the key differences observed in our case study.

Table 2: Mask-wearing in Greece and Singapore. An extreme comparison.

| Country | Greece | Singapore |
|---|---|---|
| School closures | extended periods | one-time (incorporating rescheduled school holidays) |
| Face mask-wearing in educational settings | inconsistent use (at least until November 2020) | systematic use (from April 2020 onwards) |
| Availability of face masks | 'mask fiasco' (distribution of oversized masks to children) | wide |
| Availability of personal learning devices | fragmented | near-omnipresent |
| Inequality | increased | increased |

Sources: Human Rights Watch, 2021; Gov.sg, 2020; Garda world, 2020; *Channel News Asia*, 2020; France24, 2020; *The Straits Times*, 2021; OECD, 2020; Sustainability, 2020; Social Science Research Council, 2020.

Certain face mask issues go beyond country boundaries and have a similar effect on their wearers globally. Problems that may arise from mask-wearing are impaired face recognition and identification, impaired communication, and blocked emotional signalling (Spitzer, 2020). A face mask markedly impairs face recognition and identification, and interferes with social interactions; this is why burglars and thieves wear them (Reynolds & Roth, 2018). In school settings, the inability to recognise and identify others are even more prominent for new students. Fortunately, a quick fix to this

problem is name tags, personalised masks, and cues (body shape, voice).

Communication (verbal and non-verbal) may be impaired from wearing face masks. Humans communicate by observing and making inferences such as identity, gender, age, emotional states, personality traits, et cetera. However, when such universal language is prevented by a facial mask, the ability to understand people is reduced significantly. Individuals can only rely on language and gestures, limiting the extent to which nuance can be interpreted, with some input from decoding eye movements, which are still visible above the mask. Two detrimental consequences of face masks relating to effective verbal communication are impaired auditory signal and obstructed visual signal from the lips (Atcherson et al., 2017). Most people do not realise, but humans rely on these signals to understand speech, especially under circumstances of impaired sound comprehensibility (e.g., noisy environments). Thus, with face masks, speech transmission is dampened, increasing misinterpretation.

The inability to observe and identify facial cues due to masks is also a disadvantage. Emotions play a huge role in social interactions, especially in teaching and learning. Paul Ekman (1970) performed experiments to demonstrate the existence of basic emotions regardless of culture: surprise, fear, disgust, anger, happiness, and sadness. It was realised that different emotions displayed on an individual's face convey information critical for social cognition and action (Scheller et al., 2012). Therefore, when the bottom half of facial expressions is visually prevented, it is difficult to recognise one's positive (pleasure, joy, friendliness) or negative emotions (anger, sadness, fear). This impairs social interactions and the ability to understand, and empathise with, one another. In school, students and teachers' interaction, communication and

behavioural norms may be impacted. Moreover, students might not learn social cues and emotionality, affecting future interaction and outward emotional displays (Spitzer, 2020).

Despite mask-wearing being beneficial in preventing the spread of Covid-19, it has also brought about ample health concerns and disadvantages. Common physical health concerns with mask-wearing are bilateral headaches, perioral dermatitis with rashes and redness, false security leading to less compliance with infection control measures, and unintentional closer contact due to speech incoherence increasing infection risk (Spitzer, 2020).

## Conclusion

The spread of the COVID-19 pandemic being global calls for cross-boundary, multi-actor collaboration to mobilise relevant resources, enhance knowledge-sharing and coordination, stimulate innovation, and build common ownership to joint solutions and their subsequent adaptations (Ansell et al., 2020). Our cases from Greece and Singapore show that no matter how many challenges educators and students face, they can adapt and evolve accordingly.

Even though to educate and be educated whilst wearing a mask is not an easy task to accomplish, the pandemic has highlighted both challenges and opportunities for everyone involved, with a hope for innovation and transformation. Freire's (1970) dialogical pedagogy emphasised the role of "teacher as learner" and the "learner as teacher," while each is learning from the other in a mutually transformative process. Training needs for educators were met with adaptability and innovative ideas, depending on each country's infrastructure. The complexity and importance of the teaching profession was also brought to the forefront – that of educator, facilitator and

social worker in nurturing students' evolving needs in a time of crisis.

Every child should have access to education, and we should all (teachers, parents, associations, governments), work together to make this happen. A structured and inclusive remote schooling framework can be attained by improving digital infrastructures and competences of schools and their stakeholders (Bessios, 2021). In this way, access to digital equipment, mostly for students, can be ensured and teachers will have the tools to develop their digital learning and teaching abilities, with the purpose to assure free and quality education for all, no matter the circumstances.

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